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Alfalfa weevil: Scouting and economic thresholds

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Scouting for alfalfa weevil larvae can be simplified by first using a sweep net to determine if are in the field. Sweeping even a small patch of alfalfa with a net can reveal whether or not larvae are present. If they are found in the net, then proceed to the stem-sampling technique. This technique more accurately determines the population size and the potential for economic damage.

Collect 30 stems by holding the top of the plant with one hand and breaking the base of the stem with the other hand, or cut it with a knife. By holding the top of the stem, this prevents larvae from dropping from the stem when it is broken or cut at the base. Then place the stems (upside down) inside a white, 5-gallon bucket and beat them against the side. Large larvae are easily knocked loose and can be counted, but newly developing leaves must be pulled apart to find very small, newly hatched larvae hidden in the plant tip.

Alfalfa weevil larvae.

Enlarge [1]

Alfalfa weevil larvae have a very dark head, almost black, and are pale green with a white stripe down the back. When the alfalfa weevil hatch, they are approximately 1/16 inch in length and may be light yellow. After feeding for several days, they turn green. They are 5/16 inch in length when fully grown.

Alfalfa weevil larvae may be confused with larvae of the clover leaf weevil, although these are much larger, have a light brown head, and often have the white stripe edged with pink. Clover leaf weevil larvae usually hide around the base of the plant during the day, feed mostly in lower leaves at night, and rarely cause economic yield losses. Clover leaf weevil larvae should not be counted as part of the alfalfa weevil sample.

Clover leaf weevil larva.

Enlarge [2]

Economic thresholds are shown in Table 1. Measure the plant height and then determine the

average number of weevil larvae per stem, based upon a 30-stem count, before consulting Table 1. The economic threshold depends on crop height, estimated crop value, control costs, and the growing conditions stated in Table 1. Several insecticides labeled for weevils are listed in Table 2.

Table 1. Economic thresholds based on alfalfa weevil larvae per stem, calculated from a 30-stem sample

Plant Height (Inches)	$40/Ton	$70/Ton	$100/Ton	Management Decision
4	1.8-2.8	0.8-1.3	0.6-0.8	Reevaluate in 4 days. If damage and larval numbers are increasing, a long-residual insecticide is recommended to prevent severe yield loss.
6	2.0-3.0	0.8-1.5	0.6-1.0	
8	2.2-3.2	0.9-1.7	0.7-1.2	
10	2.3-3.5	0.9-1.9	0.8-1.4	If alfalfa is in vegetative stages, a short-residual insecticide should be used.
12	2.4-3.8	1.0-2.2	0.9-1.6	
14	2.5-4.2	1.2-2.5	1.0-1.8	
16	2.6-4.6	1.5-2.8	1.1-2.0	If >60 percent of alfalfa is in the bud stage, harvest is recommended. Evaluate stubble after harvest. If not scheduled to be cut within 7-10 days, a short-residual insecticide is recommended.
18	2.7-5.0	1.7-3.1	1.2-2.3	
20	2.8-5.8	2.0-3.4	1.4-2.6	
>20	3.0-7.0	2.4-4.0	1.6-3.0	

Use the smaller threshold if alfalfa is drought-stressed or control costs are relatively low ($7-10 per acre). Use a larger threshold if rainfall is abundant, diseased larvae are present, or control costs are relatively high ($11-14 per acre).

Table 2. Insecticides labeled for alfalfa weevil

Insecticide	Rate per Acre (High and Low Rates)	Harvest Interval (Days)
Baythroid 2E	1.6-2.8 ounces	7
Furadan 4F	0.5-2 pints	7-28
Lannate LV	3 pints	0
Lorsban 4E	1-2 pints	14-21

Mustang Max	2.24-4.0 ounces	3
Pounce 3.2EC	4-8 ounces	0-14
Sevin XLR+	3 pints	7
Warrior	2.56-3.84 ounces	7

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